

REMARKS

Claim 1 has been amended to claim a ballistic-resistant article comprising a fabric or clothing without a matrix, which is made of a yarn of polybenzoxazole polymer fibers. This amendment is supported by the specification, which states that "the fabric may be used alone or may embedded in a matrix to form a rigid panel." See specification, page 12, lines 3 and 4 (emphasis added). No new matter has been added.

Claims 1-15 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatenable over at least claim 1 of U.S. Patent No. 5,196,259. According to the Examiner, although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to articles of manufacture comprising PBO fibers. This rejection is respectfully traversed.

Claim 1 has been amended to specify that the ballistic-resistant article comprises a fabric or clothing "without a matrix." Claim 1 of U.S. Patent No. 5,196,259 is directed to a fiber-reinforced composite that includes a matrix. The attached Declaration under 37 CFR 1.132 of Yokihiro Nomura illustrates that forming the fabric without a matrix provides unexpected superior results as compared to fabrics that contain a matrix. Accordingly, claim 1 of the instant invention is patentably distinct from claim 1 of U.S. Patent No. 5,196,259. Claims 2-14, which depend from claim 1, and therefore contain the same limitations as claim 1, are patentable over U.S. Patent No. 5,196,259 for at least the same reasons.

Claims 1-15 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over at least claim 1 of U.S. Patent No. 5,233,821. Applicants have included a terminal disclaimer with this amendment that overcomes this rejection.

Claims 13 and 15 stand rejected under 35 USC 112, second paragraph, because claims 13 and 15 are duplicates of each other. Claim 15 has been cancelled, making this rejection moot.

Claim 1-8 and 14 stand rejected under 35 USC 102(b) as being anticipated by Wolfe. This rejection is respectfully traversed. As previously explained, claim 1 has been amended to specify that the ballistic-resistant article comprises a fabric or clothing "without a matrix." The attached declaration of Yukihiro Nomura shows the benefits and differences of a ballistic-resistant article comprising a fabric or clothing without a matrix (a PBO soft-type article) as compared to a ballistic-resistant article having a fabric or clothing with a matrix (a PBO hard-type article).

Wolfe discloses a ballistic-resistant article using PBO in composite applications (see Wolfe, page 601, lines 11-14, and page 633, lines 1-2 and lines 12-14). A composite as described by Wolfe is a structural material comprising a matrix resin. Thus, the ballistic-resistant article using PBO of Wolfe is of a hard type. Accordingly, Wolfe does not describe a ballistic-resistant article comprising a fabric or clothing without a matrix as claimed by applicants in claim 1. Claims 2-8 and 14, which depend from claim 1, and therefore contain the same limitations as claim 1, are patentable over Wolfe for at least the same reasons.

Claims 1-10 and 13-15 stand rejected under 35 USC 102(e) as being anticipated by Weber. This rejection is respectfully traversed. Claim 1 is directed to a ballistic-resistant article comprising a fabric or clothing without a matrix, which is made of a yarn of polybenzoxazole polymer fibers (emphasis added).

Weber describes a protective cut-resistant garment that comprises a plurality of fibers that contain a liquid-crystalline polybenzoxazole or polybenzothiazole polymer, selected such that the garment is cut-resistant.

Claim 1 claims a "ballistic-resistant" article. In contrast, Weber discloses a "cut-resistant" garment. A ballistic force causes a tensile force that acts on the filaments of the article. Accordingly, the tensile strength of the filaments directly affects the "ballistic-resistance" of this article. In contrast, when the "cut-resistant" garment shows "cut resistance," a shearing force, rather than a tensile force, acts on the filaments constituting the garment. Accordingly, the tensile strength of the filaments does not directly affect the cut-resistance of the garment, but the shearing strength does.

To be more specific, a "ballistic-resistant" article is typically made of a fabric comprising filaments or an alternate laminate of unidirectional filament sheets. This design maximally utilizes the tensile strength of the filaments. In contrast, a "cut resistant" garment is typically made of a felt or a cloth using yarn of discontinuous fibers. The "cut resistant" garment typically has a design having a bulky structure preventing easy penetration of edge tools.

Further, Weber does not disclose whether a matrix polymer should be used to form the garment as claimed in Claim 1. For the foregoing reasons, claim 1 is not anticipated by Weber and should be allowed. Claims 2-110 and 13-14, which depend from claim 1, and therefore contain the same limitations as claim 1, are patentable over Weber for at least the same reasons.

Claims 1-15 stand rejected under 35 USC 102(e) as being anticipated by Pierini. This rejection is respectfully traversed. Again, as previously explained, claim 1 has been amended to specify that the ballistic-resistant article comprises a fabric or clothing "without a matrix," a so called "soft type" article. As described herein and in the attached declaration, the soft type article claimed by applicants offers advantages over hard-type articles. As described by the Examiner, Pierini discloses a "hard type" article comprising a matrix. Accordingly, claim 1 is patentable over Pierini since Pierini does not disclose the ballistic-resistant article comprising a

fabric or clothing without a matrix as claimed in claim 1. Claims 2-8, 13 and 14, which depend from claim 1, and therefore contain the same limitations as claim 1, are patentable over Pierini for at least the same reasons.

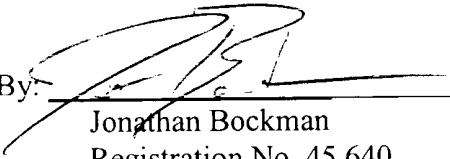
Claims 1-8 and 13-15 stand rejected under 35 USC 102(e) as being anticipated by Pepin. This rejection is respectfully traversed. Claim 1 has been amended to claim "a ballistic-resistant article comprising a fabric or clothing without a matrix, which is made of a yarn of polybenzoxazole polymer fibers." As described herein and in the attached declaration, forming the fabric or clothing without a matrix offers advantages over using a matrix. Pepin does not discuss or disclose forming a fabric or clothing without a matrix as claimed by applicants. Accordingly, claim 1 is patentable over Pepin. Claims 1-14, which depend from claim 1, and therefore contain the same limitations as claim 1, are patentable over Pepin for at least the same reason.

For the foregoing reasons, allowance of claim 1-15 in this application is solicited.

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, applicants petition for any required relief including extensions of time and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing 358362001101.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Cancel claim 15 without prejudice or disclaimer.

Amend claim 1 as follows:

1. (Amended) A ballistic-resistant article comprising a [plurality] fabric or clothing
without a matrix, which is made of a yarn of polybenzoxazole polymer fibers.